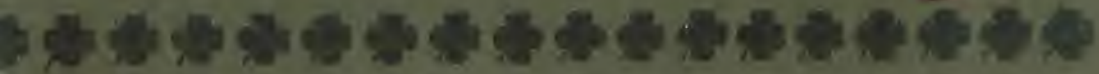
Ideal heating



Ideal Heating

Issued in the interest of buyers of heating apparatus
who are seeking an investment which returns
dividends in comfort, cleanliness and
healthfulness, with economy
in labor and fuel.

Brought out by

AMERICAN RADIATOR COMPANY

GENERAL OFFICES: 282-284 Michigan Avenue, CHICAGO

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(North Side Open Court, Block No. 6-B).

The idea back of Ideal Boilers

is to give the comfort seeker the fullest sense of comfort with the least sense of apparatus—the most satisfying results at the least expense of fuel and of labor—with freedom from repairs, and a durability equal to the life of the buildings in which the boilers are erected. IDEAL Boilers fill those requirements exactly—and more.

The IDEAL Boiler is a strong factor in thousands of ideal homes. It is the efficient, silent, reliable servant of the house-owner—an adjunct which does more for the cheer and healthfulness of home-life than any other material feature or any decoration of the home.

Comfort at a turn of the valve

A brief history of heating progress

Heating buildings by steam and hot water methods is practically but a few generations old. For many years after these methods began to be employed in heating residences, their first users were, quite naturally, men who had become familiar with the uses of steam in high pressure or power work. Hence, it was customary then to run a house-heating boiler at from ten to thirty-five pounds pressure. This, of course, necessitated considerable supervision of the fire and of the apparatus, and the fuel expense was extravagant.

The old way—a man's job

Many such old forms of boilers are still in use, and people who are not broadly informed on the subject are inclined to misjudge the merits of modern steam and water warming.

Where a size is selected suitable for the cubical contents and the uses of the building, with due regard to its exposure to the elements, an IDEAL Steam Boiler will uniformly warm the rooms in the milder winter weather with a steam pressure of two pounds (or less), which equals about 218 degrees temperature, or an IDEAL Hot Water Boiler will perform the same service when the water is from 140 to 160 degrees temperature. (Note: water boils at a temperature of 212 degrees, at sea level.)

In coldest weather an additional steam pressure of two or three pounds should be sufficient; and in the hot water apparatus

A brief history of heating progress — Continued

an additional twenty to thirty degrees of heat in the water contained in the system will ordinarily meet the most exacting requirements.

This change from old time to modern methods means more than the figures above imply, it accounts for the far more healthful, uniform heat produced, for the great lessening in caretaking, the absolute cleanliness, the skillful, automatic *control* of temperature, the great saving in fuel, the perfect safety, the removal of all danger of conflagration, and for the long life of the apparatus.

Steam and water heating was but a decade ago considered a difficult undertaking—today it is changed, through the simplicity of our apparatus, to a woman's pleasure in ease of management. The house-work is halved.

The modern way—a woman's pleasure

The Investment Feature

While the purchase of the cheaper forms of heating apparatus must be considered as in the nature of expense (because of their limited durability) the contrary is the rule in buying steam or hot-water outfits. Their purchase is a permanent and dividend paying investment. The value of the property so equipped is increased—for living comfort, for renting purposes and if necessary, for selling. The term "it is heated by steam" or "by water" stands for the fact that the building so described is worth more in rental or in its selling equity—people expect to pay more—purchaser gets his money back.

The general construction of Ideal Boilers

They are made to warm the building well and economically—not to decorate the cellar.

Yet one can not look upon an IDEAL Boiler without being impressed with its clean-cut, air-of-solidity, efficient plainness.

It is the strong, steady, silent, unbreakable heart of the heating outfit.

It is built to keep hot water a-plenty moving rapidly through the piping and radiators above, or, in changed form, to gently, surely, evenly, vaporize water into steam, which steadily presses forward throughout the pipe system to its destination—the radiators.

The scientific and mechanical accuracy necessary to boiler construction is, we believe, readily made apparent to anyone who will study the illustrations in this book.

In each of the various types of IDEAL Boilers every line has been laid and stands for one purpose—*efficiency*. There is a perfect proportion or ratio between areas of grates, draft openings, heating surface, non-heating surface, flues, water-ways, water capacity and connections.

Every conceivable feature has been carefully and exhaustively analyzed in our testing laboratories by a corps of inventors, designers, mechanical and heating experts, whose experience and ripest ideas are solely devoted to the advancement of our product.

Some of the most prominent *family* features of our various types of IDEAL Boilers are taken up on the pages following.

Yet it is the harmonious relation of all of these features which makes IDEAL Boilers all that *ideal* boilers should be, and which is the reason for their phenomenal success.

The circulation principle of Ideal Steam Boilers

In order to get effective, noiseless results, the steam should be sent through the radiators quite dry—that is, not much water in the vapor. We, therefore, invite particular attention to the important feature or characteristic common to all types of IDEAL Steam Boilers, viz.: the superior provision for maintaining a circulation of water within the boiler itself.

When water is boiling in a single test tube (see Fig. A) over a lamp, with no chance for circulation, a convulsive or fountain-like action is produced—the rising steam lifts so much water in the form of foam that the vessel boils over. But when heat is applied to one leg of a "U" shaped tube (as shown by Fig. B), a circuit is brought about—up one side and down the other—and thus violent action at the surface of the water ceases, resulting in a much larger supply of steam delivered to the space above in quite a dry state.

This idea of smooth-working inner circulation has been applied to IDEAL Boiler construction. The foaming and lifting of water into mains, piping and radiators, which has been a source of trouble in earlier and competitive boilers, is thus overcome. Erected with ordinary care, there can be no uncouth noises of "gurgling" or "hammering" in a heating plant supplied by IDEAL Boilers.

Fig. A.

Fig. B.

What causes water to circulate in a heating apparatus

As water is heated it rises to the highest point — to its level. Anyone who has watched the boiling of water in an open kettle has noted the little globules or "bubbles" of heat rising *straight up* to the top-level of the water. Bulk for bulk, water when heated is lighter in weight than when cold. Thus a cubic foot of water at 39° weighs about 62½ pounds, while a cubic foot of water at 212° (the boiling point) weighs about 59½ pounds. This difference of about three pounds per cubic foot (or less) in weight brings about a circulation of the water throughout a hot water heating apparatus.

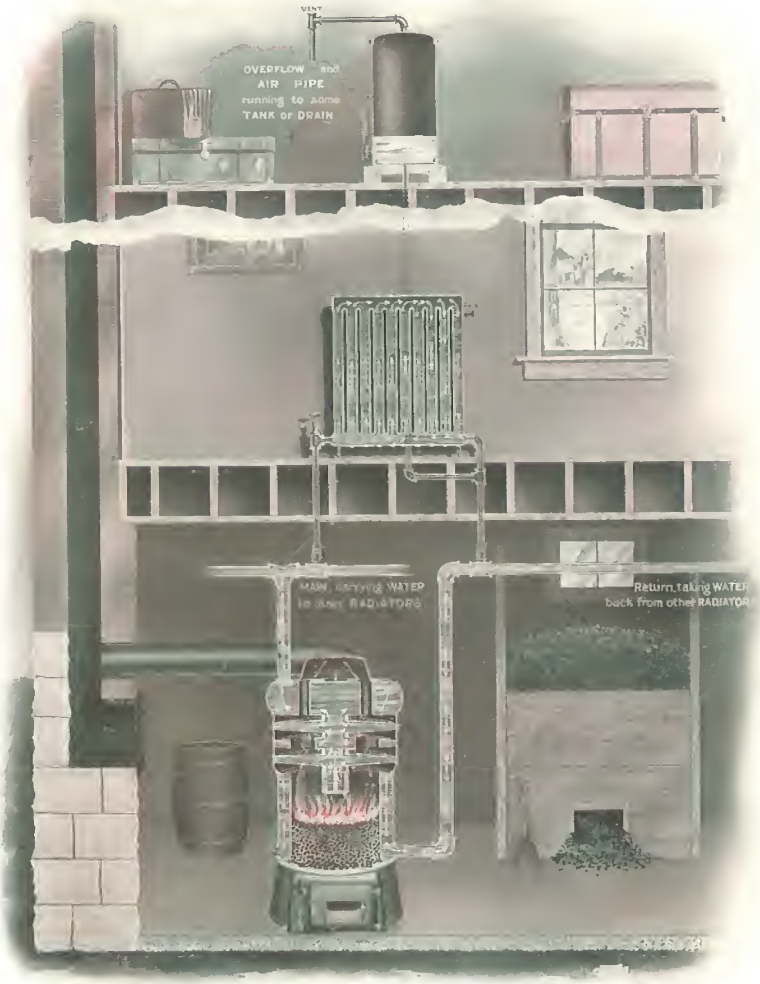
As will be seen in the outline illustration herewith, the walls of the fire chamber of the boiler are hollow — double walls. The space between is filled with water. The moment heat is applied the iron transmits it to the water. Water is the greatest medium known for absorbing and conveying heat, and the heat globules, answering natural law, rise instantly through the other hollow sections of the boiler, thence into the piping and through the hollow radiators beyond. The colder, heavier water falls to the bottom of the fire chamber to be heated. As the heat globules rise to the top of the heating plant they come in contact with the colder surfaces of the radiators, which absorb the heat from the water or steam and impart it to the atmosphere of the rooms. This cooled water, on account of its greater density and therefore greater weight, then drops to the lowest point in the system to be reheated — again and again.

The heated water, or the steam in the steam apparatus, does not, as is sometimes erroneously supposed, come in contact with the atmosphere of the rooms. The atmosphere of the rooms simply comes in contact with the liberal surfaces of the radiators heated at a low temperature — much lower than the warming surfaces of any other method, such as stoves, hot air furnaces and the like; hence the milder, more healthful quality of atmosphere brought about by steam and water warming.

As was pointed out above, the natural tendency of the heat globules is to shoot *straight up*. There is so little difference between the weights of the cold and heated water that all the waterways should be so arranged that they will not interfere with the

What causes water to circulate — Continued

velocity of the motion of the heating medium throughout the heating plant. This is what is meant by the *high efficiency* of IDEAL Water Boilers.



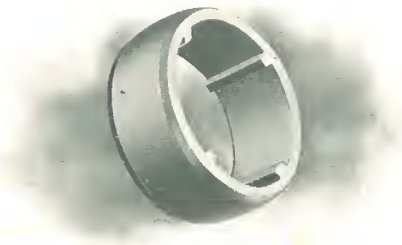
NOTE — This view shows an average outfit opened up to illustrate circulation. It merely shows the idea, by boiler, piping and one radiator, and the expansion tank — which is the relief-valve of the job — always open to the air. For the room as shown a radiator could be set in the corner or under the window if desired. The pipe to expansion tank usually runs from some return pipe from a radiator on an upper floor.

Importance of the nipple connections

Here is a vital point, Next to heating efficiency and fuel economy a boiler must be tight—permanently water-tight.

One of the leading, time-tested features of IDEAL Boilers, and for which is claimed originality, are the nipples used to connect the sections or water-ways. These nipples being made of the same material as the boiler, their stability is not affected by expansion and contraction. They are made with great mechanical accuracy—to the thousandth part of an inch—by our own special patented machinery, and insure a joint or connection to be formed which shall be "as tight as a drumhead," *and to keep it so.* In earlier and competitive practice the failure to provide this protective device has been the cause of numberless instances of boilers being temporarily, or even permanently, disabled, causing much annoyance, discomfort and expense. "Packed" or gasket joints, made up with rubber, asbestos, paper, or other washers are not used in any type of IDEAL Boilers. Such joints do not, as a rule, long withstand the heat, the soak of the water or the constant strains due to expansion and contraction.

None of the joints of IDEAL Boilers are exposed to the direct action of the fire, and with ordinary care our boilers should endure as long as the buildings in which they are erected shall stand. The longer used, the tighter they become.



What is meant by efficient surfaces

Even to those who have not studied boiler construction, these illustrations of sections impress one with a sense of their clean-cut, strong lines. There is "bridge-like" strength—arching equilibrium—the most careful calculation of water-ways and flues—concentration of radiant heating surface—perfect machining—all are exhibited in the proportions, areas, curves and angles, commonly termed "the lines" of the boiler. In each size of IDEAL Sectional Boilers there is equal water circulation coming in at the foot of both legs of the section, pressing upward at the side of and over the hottest fire. That is the main idea, to present the largest possible amount of heating surface to the direct action of the fire. Why? Because, as when a woman desires a "quick steeping" from a *low* fire, she lifts the stove-lid and puts the teapot down onto the coals; so, in bringing fire and water into close contact in the IDEAL Boilers the user is sure of quick action. Every ounce of fuel is made to yield its full value of heat to the surrounding water.

Middle section of 36-inch Sectional Water Boiler

Air burning

It takes four principal things to make effective, economical heating—air, fuel, boiler, chimney. Air has as much to do with results—economical results—as has any other feature.

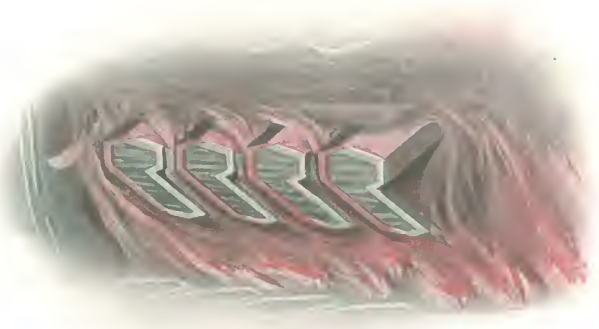
A certain part of air, the "oxygen" must be supplied or no fire. To "smother" a fire is to cut off its supply of oxygen; that kills the flame. Too much air makes too great a draft; that chills the flame.

Air must be supplied under the grate to the fuel in the firepot, in addition to a proper amount through the fire-door slide over the top or face of the fire to mix with the flame and free gases, and thus to cause good, sharp, complete combustion. In proportion as the right amount of air is supplied, at right points, the right economy in fuel is secured. Those who are familiar with the modern improved forms of gas and oil burners, in which gas and air are thoroughly mixed and produce far greater illuminating effect, will appreciate this point as applied to our boilers.

The air-burning features of IDEAL Boilers are developed to the full, as their performance in thousands of homes well illustrates.

Value of overhanging fire surface

Fuel is saved in a boiler which has its overhanging fire surface very close to the fire. The idea is to have this surface take up directly, quickly and extensively all the heat generated from a low fire. Many boilers do very well in severe weather—at least the householder at such time is willing to overlook fuel cost if the boiler can be *forced* to keep the premises warm. Such boilers, however, noticeably require over-firing in moderate or ordinary winter weather—it is then that the fuel is doubly wasted. This is because the surfaces are not correctly placed or ample enough to obtain *best results from a low fire.*



For southern climates and mild weather

These Boilers can be set up by modern fitters so that they may be perfectly controlled for the needs of mild weather. Overheating or waste of fuel need never occur in maintaining a low fire for the chilly days of fall and spring.

Because of special provisions along these lines the IDEAL Boilers are well adapted to Southern climates. The many advantages of Hot Water make that method particularly ideal for the South, while our regulating devices and modern methods of installation give the Steam method nearly the same value in this important matter of control.

Correct flue surfaces leave no "undigested" coal

And here is another feature—a very important one in obtaining good results from fuel burned. Burning coal liberates certain gases which burn readily and make intense heat—*if* they are permitted to "take fire." The chambers (and the flues opening out of these spaces) are so arranged in IDEAL Boilers that the gases are burned as fast as they are freed from the coal. Often spaces are made between the sections so that these flaming gases very much assist the combustion throughout the flues—making the flue surfaces also rapid or quick conductors of heat to the water.

These flue surfaces are rightly proportioned to the grate surfaces and other features of the boiler which they influence. In short, the surfaces of these flues take up about all the heat remaining in the smoke and which is not needed to keep up good draft. The boiler fully digests the coal—sends its full heating value up to the rooms, not up the chimney.

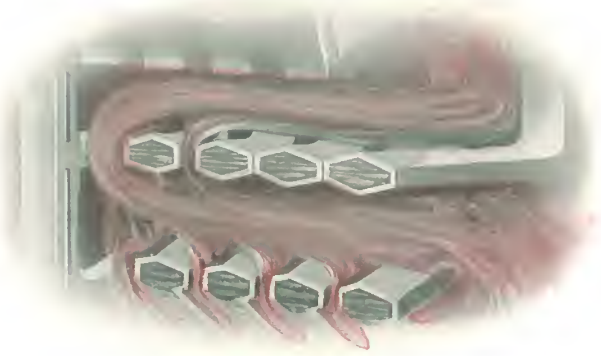
Clinkers mean "undigested" coal

Self-cleaning surfaces

All fire surfaces of IDEAL Sectional Boilers are at such pitch or angle that they are practically self-cleaning.

Further, as will be observed by reference to the illustrations, these heating surfaces are so arranged and inclined that the heat rays are brought directly in contact with or impinge upon every inch of their area. Hence, the high efficiency of these surfaces, all of which are backed by water.

Note that a deposit of one-quarter inch of soot, which is a non-conductor of heat, requires fifty per cent more fuel than would be necessary if the surfaces were clean.



A liberal steam dome and its value

To get rapid, noiseless results, the steam should be sent through the radiators quite dry. The liberal steam space provided in IDEAL Steam Boilers entirely overcomes the trouble found in the use of many old-style boilers, through the foaming and lift-

ing of water into mains, pipes and radiators. Where the piping is erected with ordinary care, there can be no uncouth noises of "gurgling" or "hammering" throughout the heating system supplied by IDEAL Steam Boilers.

What is meant by friction, or choking of heat currents

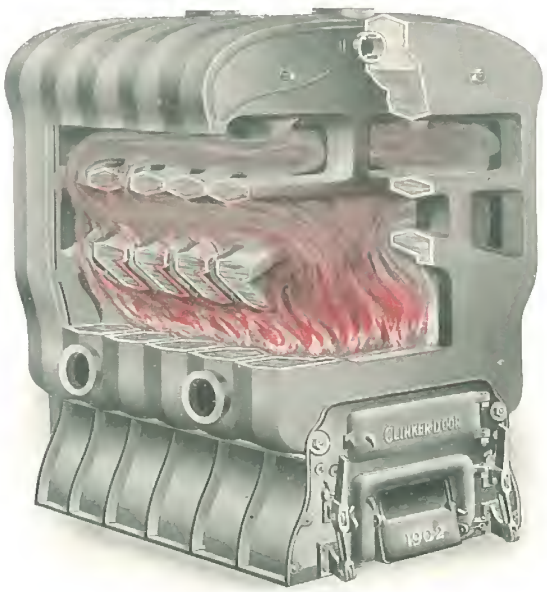
In the boilers designed for hot water heating, a perfectly free, continuous upward movement of water is maintained. This idea of rapid, free circulation is applied by spreading the water into separate columns, distributed over large areas of heating surface.

Friction means choking of heat currents, which in turn means inefficiency and waste of fuel. IDEAL Water Boilers are so made that every particle of water, from the moment it commences to take up heat (and hence to expand and become lighter in weight), moves freely and rapidly *straight up* through the boiler and piping to the radiators beyond. This in part accounts for the good results and marked fuel economy secured in the use of these boilers.

Deep fire-pots—less care-taking and more efficient

The magazine feed type of boilers has well-nigh passed out of use. The fault was that the magazine usually occupied a space which otherwise would provide the most effective fire-chamber and water heating surface. The extra heavy weight of the fuel also crushed down the center of the fire—producing poor combustion—clinkers.

In the IDEAL Boilers we have the far better plan of a deep fire-pot which will hold a liberal amount of fuel without displacing this vital boiler surface but rather increasing its area. Attention to the fire is not required oftener than twice a day in ordinary weather. The low, slow, deep fire maintained is also vastly more economical in the burning of fuel.

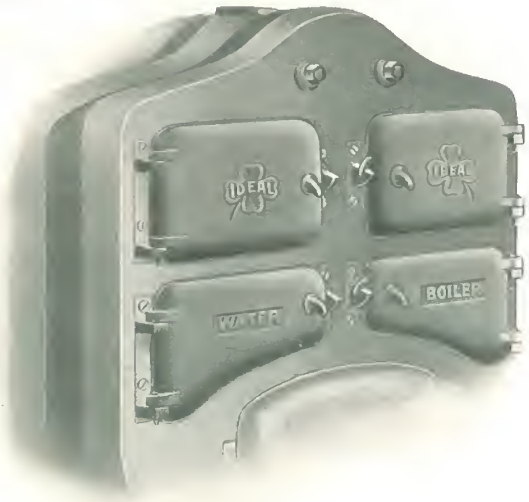


Our much prized smoke-pipe check draft

All our boilers are provided with check draft in smoke hood, connecting to smoke pipe. Experience has taught that no heating apparatus should be without a check draft to smoke pipe. The devices we supply are as sensitively balanced as a pair of fine scales, and when they are connected by chain to the regulator rod, they materially assist in the *automatic* control of the fire, and bring about marked fuel economy.

Clean-out doors are convenient

Our boilers are all equipped with clean-out doors at points which permit easy access for thorough cleaning of all fire and flue surfaces. As stated in a previous paragraph, however, the fire surfaces of our boilers are so inclined and arranged as to be practically self cleaning. When poor quality of soft coal is used, these surfaces can and should be kept thoroughly clean to obtain the best results.



The ratchet prevents accidental dumping of fire

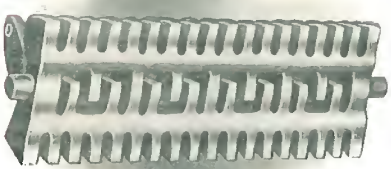
A ratchet or lug is placed on the front of the boiler above the grate connecting-bar, which passes through the front of ashpit. This device permits of rocking the grate bars sufficient for all ordinary care. When it is desired to dump the fire or ashes quickly and completely, the releasing of this ratchet permits a freer action of the bar, turning the grate surfaces up sidewise. This device prevents the possibility of annoyance through accidental dumping of fire. Anyone who has had the experience of unintentionally dumping the fire in his stove, hot air furnace or boiler (because the shaking bar could be turned completely around at one operation) will appreciate this simple but valuable device.

Easy-shaking, heavy, durable grates

We appreciate fully the hard usage to which grates are subjected by those who are over-strong and by those who are inclined to be careless. The most important feature of any grate is the construction which gives correct openings therein for the passage of proper amount of air to assist in thorough, economical combustion. Our grates accurately provide this, at the same time bringing the fingers of the grate bar sufficiently close together to permit the burning of the smaller sizes of coal.

As will be noted from the top and bottom views of two of these grate bars, they are very heavy, and the bottom view shows them to be strongly trussed and braced to withstand hard usage.

Their strength and weight do not interfere with their simple, easy shaking, as they are well pivoted or balanced. In all except the smallest size boiler we provide two shaking levers -- one at the right, the other at the left of the ashpit door. With the right hand lever the rear grate bars are rocked or dumped, the left-hand lever rocks or dumps the front grate bars. In this way the fire can be agitated to a greater or less degree to suit any condition.

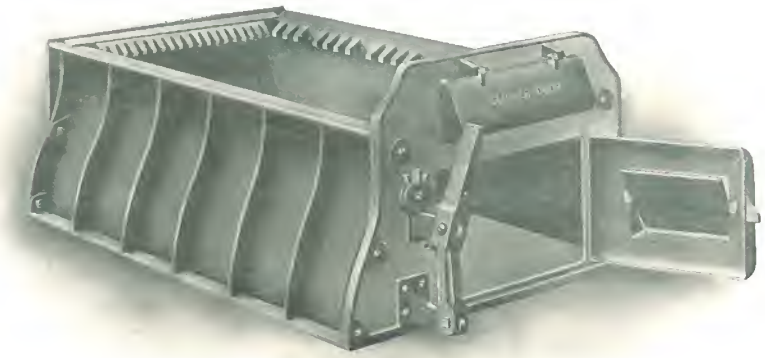


If the ashes are not allowed to accumulate until they completely fill the ashpit, there is no danger of the grates "burning out" or being destroyed. With ordinary care the grates will last as long as the remainder of the boiler, or, in fact, as the building itself.

Large ashpits for ash deposits

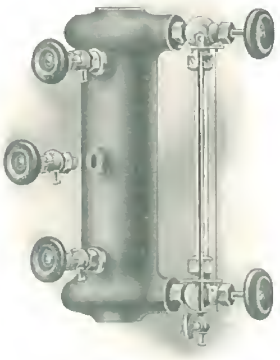
From the illustrations of the various types and sizes of IDEAL Boilers it will be noted that the ashpits are all of extra large capacity. On occasion, they will hold several days' ash deposit.

It is best, however, to remove the ashes from the pit once per day. The danger of allowing too great an amount of ashes to accumulate is that the deposit will fill up under the grates, cut off the air supply and thus cause the grate bars to warp or melt down. Provided the ashes are regularly removed, the grates should last for many years.



A steady, reliable water column

As shown by the illustration, the water column specially designed by us for steam boilers, is unusually liberal in size. There is no opportunity within it for friction, hence there is always found recorded in the glass tube the true fluctuations of the boiling water—as steadily as the pulse reflects the ebbings of a healthy individual.

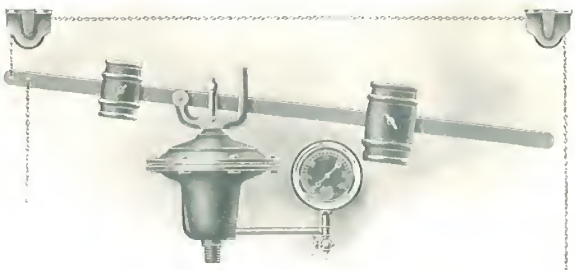


An assured relief valve

The non-corroding relief valve, which is a part of the equipment of each steam boiler, plays the part of monitor over the action of the boiler, making, with the automatic damper regulator, a double insurance against the boiler carrying more steam than is required by the radiators to balance the outside weather conditions—otherwise fuel is needlessly burned.

A sensitively adjustable damper regulator

We take pardonable pride in the simple, reliable and durable quality of the trimmings supplied with IDEAL Steam Boilers. Our damper regulators are so well made and can be so delicately balanced by means of weights, that the Boiler will automatically carry exactly the amount of steam desired to meet the varying weather conditions—from storm to calm. These trimmings are features which make but a small part of the cost of the Boiler, but are worth a hundred fold their price in the perfect, automatic control of the fire secured by their use. Like many other features of IDEAL Boilers, they are our own exclusive design.



Handy, well-made fire tools

A suitable equipment of fire tools is shipped with IDEAL Boilers—hoe or scraper, poker, flue brush and shaker. Our general Boiler price list describes in detail the exact tools included. The tools furnished are all of the best device and their convenience will be enjoyed.

The small parts

The petty things about IDEAL Boilers are very closely regarded,—the grate connections and pins—hinge pins—door-handles—screws—rivets—bolts—every little thing is as large in the division of attention we give it as is the largest section.

And—what is quite important to the user—the feed doors and other doors fit tight,—like the cover to a watch. The latch so closely fits the catch-nose that the doors are drawn up flush and tight to the frame. They do not leave cracks or warp and spring open, allowing gas and dust to escape. The doors all have baffle plates or are backed by asbestos-board, to keep them cool and prevent warping.

In our larger boilers, the catch-noses and the stationary half-hinges are on separate, counter-sunk castings, so that if some heavy weight should fall violently against the door or doors, or in case the door hinge-pin bearings should be violently slammed and broken, it would only be necessary to supply new counter-sunk castings at trifling expense. This is a marked advantage over the old way, wherein such breakages (while rare) necessitate the purchase of a new entire section.

It is in many little features of this nature *that the householder's interests are guarded* in IDEAL boilers.

The sectional construction of Ideal Boilers permits the easy erection in old houses

The phenomenal success of IDEAL Boilers is also largely due to the fact that they are made in sections so that even their largest parts can be carried through an ordinary size doorway. For this reason they can be quickly installed in old houses without disturbing the occupants. In fact, in unmodernized or old types of houses they can be erected, including the necessary piping and radiators, without the necessity of removing the stoves or hot air furnace until the new heating apparatus is ready to fire up. For this reason they can be quickly installed in winter weather when the old, crude heaters get badly worn or collapse.

Another feature of the sectional construction of IDEAL Boilers is that should the building be remodeled, extra sections may be added to the boiler at any time to give increased capacity. The sections are all made to such exact standard that they will fit together perfectly.

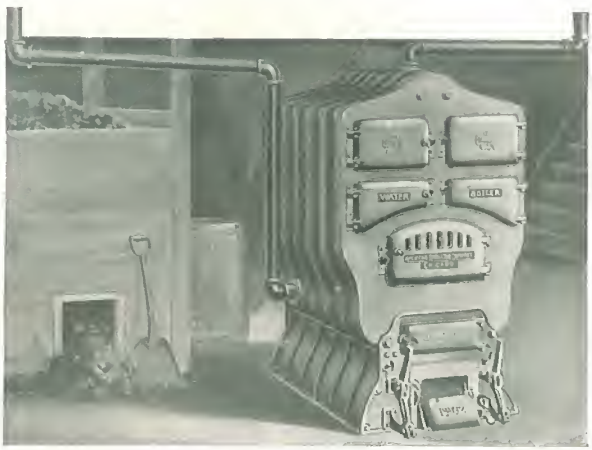
No need to leave the old home—it needs but the comfort of modern heating

For low cellars

The old-style, so-called "header" boilers, with their multitude of drums, nipples, etc., necessitated a deep cellar or of digging a special pit into which to set the boiler. Pits are a nuisance, as experience has shown.

We were the originators of a low construction of boiler which does away with the objectionable features of "headers," and which admits our boilers into shallow cellars, saving the bother and expense of preparing a pit.

A vital feature of this low construction is that it gives ample opportunity to run the mains or large supply pipes at such decided pitch in the cellar as to thoroughly drain the steam system of the water of condensation or to insure rapid circulation in the hot water system. This makes a better working job, and removes any liability for "trapping" and its resultant uncouth, gurgling noises, commonly termed "pounding in the pipes."



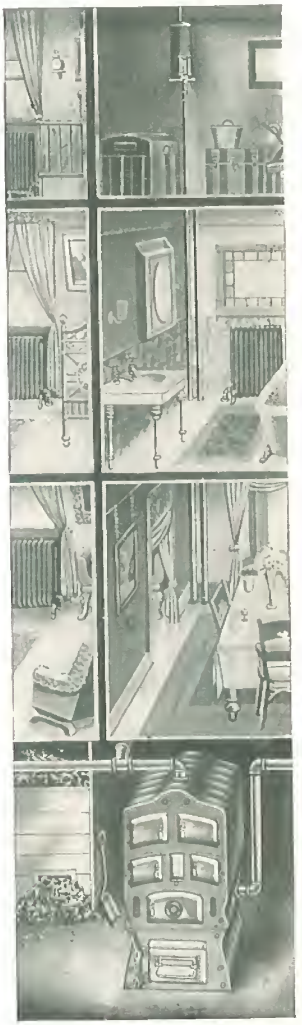
Can boilers be used in buildings without cellars?

Where no cellar is available, an IDEAL Water Boiler can be located in a back or unused room and the circulating main feed pipe carried up to the attic, from which place down feed supply pipes are carried, having branch connections to the radiators as they pass down to the return main. Into the return main are connected all of the lower ends of these down feed lines. The return main may be run under the first floor ceiling or along the walls, as seems most convenient.

The main pipes should be covered with asbestos or wool-felt covering to prevent waste of heat.

The radiators and boiler to a steam-heating outfit can be set in the same story—if the radiators are placed on shelves or brackets on the side-wall above water line in the boiler. Our Colonial side-wall radiator is well adapted for this method. It is, however, far more desirable to arrange for a cellar or pit where steam apparatus is used.

A boiler for an eight or ten room house occupies about as much floor space as one or two ordinary size flour barrels.



Showing the small amount piping exposed where installed in old houses

Regarding erection in old buildings

Among the owners of old residences the question often arises: is installation a difficult process and does it tear up and litter up a home? We answer: not necessarily. A complete heating outfit —IDEAL Boiler, AMERICAN Radiators and piping can be erected in a residence while the occupants are living in it, with no disturbance to the regular routine of the household. Modern mechanics can put up these accurately fitted materials with little or no noise, and with but a very limited amount of cutting or boring of floors. In mid-winter this work can be done without disturbing the old heating arrangements, which can be used and need not be removed until the modern steam or water heating plant is ready to be operated.

Often pipes can be run through partitions without any cutting of plaster or wood-work. And where pipes cannot be so arranged they can often be run up in a corner or through halls and closets; or behind a door and not appear conspicuous when neatly bronzed.

Modern steamfitters can put in a complete heating outfit with neatness, quietness and dispatch, leaving the building in as good condition as they found it.

Are the boilers easily operated?

Any person, no matter how inexperienced, may easily operate them. They require no more care than a parlor stove. The dampers and draft-doors are few and simple, and give absolute control of the fire.

With each boiler is furnished a clearly printed card, giving a few simple rules, readily understood, and if followed with ordinary care the boiler will yield the best possible results.

Our interest in the boilers does not cease with their sale, and should any feature in the care or operation of the boiler not be understood, we most cordially invite correspondence thereon.

Are the boilers durable?

They are made by the best workmanship and of the finest grade of new cast iron. All parts are accurately finished — each is machined and fitted to an exact standard of size. Practically every inch of surface is "backed" by water, and the boilers are practically indestructible. They are tested at upwards of 80 pounds hydrostatic pressure before they leave the works.

Why is cast iron preferable to wrought iron or steel?

The forms in which wrought iron or steel can be made are greatly limited. On the contrary, cast iron admits of being molded into almost any shape; and after years of experimenting and thorough tests our IDEAL Boilers in their improved form have their heating surfaces so arranged as to utilize or impart to the water practically all the heat generated, only enough passing up the chimney to maintain necessary draft for proper combustion of the fuel.

Curiously, water has no appreciable effect on cast iron, while it is highly destructive to sheet iron or steel. The average life of a steel or wrought iron boiler is twelve years, while a cast iron boiler is practically indestructible.

Where the water is impregnated with lime, wrought iron or steel rapidly corrodes and the boiler is destroyed in a few years, while in the case of cast iron there can be no corrosion.

That cast iron is considered superior to steel or wrought iron is well evidenced by the fact that at the present time at least ninety-five per cent. of the house-heating boilers and radiators used are constructed of cast iron, while only a few years ago practically all such boilers and radiators were of wrought iron or steel.

Specialization and fuels

We make boilers on the exact,—the specific plan,—boilers specially for water—boilers specially for steam—boilers specially for hard coal—for soft coal—for coke—for wood—boilers in which oil and gas may be economically burned—boilers for large buildings—for medium buildings—for cottages—for domestic water heating—for greenhouse heating—for many purposes specifically.

It was the practice of boiler manufacturers, and is still followed to a large extent, of offering one or two types of boilers to cover any and all purposes, to burn any and all kinds and grades of fuel, to heat any and all classes of buildings. Naturally, such boilers are rightly considered as "straddles." Our company is the first to develop lines of special boilers, each designed with particular reference to its intended use as well as its use with a certain kind or grade of fuel. Hence the satisfactory results our IDEAL boilers invariably give to the householder, because it is not to our interest to urge upon him a boiler which may do the work, but rather to assist him to select the particular type and size of boiler exactly suited to his needs.

No cold corners in a home warmed by steam or water

Coal consumption

Not infrequently, almost any make of steam or hot water warming apparatus is satisfactory to the owner who has previously been experiencing the discomforts of crude methods. His new experience is so pleasurable that he does not dream of the height of satisfaction which comes from possessing an ideal apparatus—operating at a minimum of attention and at a maximum of economy in fuel.

We are often asked as to the exact amount of fuel our Boilers will burn in warming say an "eight-room, or say an eleven-room house."

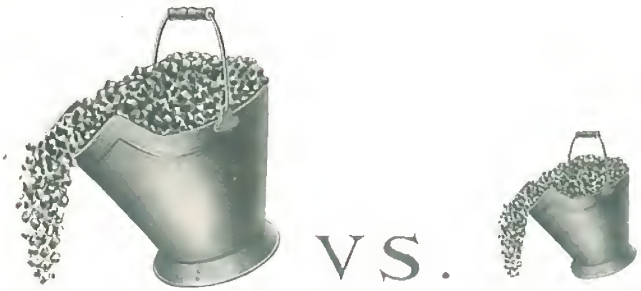
If all eight-room or eleven-room houses (or houses with more or less rooms) were built exactly alike, if they were occupied by people who could all agree as to the exact temperature desired in the rooms during waking and sleeping hours, if they all used the same quality of fuel (coal varies from 14,000 down to 6,300 heat units per pound in quality), if the weather remained practically stationary, if the fire were always attended to with regular care, etc., etc., we might then make a statement or a guarantee as to the total annual consumption of coal in any given size building equipped with a given size of heating apparatus.

It is not altogether infrequent that many buildings require the services of the mason and of the carpenter as much as the services of the heating contractor to make them comfortably snug.

We would say, however, that the most exhaustive tests in our Department of Tests, regularly conducted at our factories, show that each Boiler we make transmits per pound of fuel per hour the highest possible number of heat units. We take pardonable pride in saying, further, that in the many thousands of instances in which IDEAL Boilers have been installed in place of other heating methods or apparatus, they have proved more economical in fuel than the heaters which they replaced, and have given complete satisfaction because of their simple operation and their durability.

Coal consumption — Continued

IDEAL Boilers are the best construction that experience and capital can produce, and when given proper fuel, proper draft and proper management only the most eminent satisfaction will result.



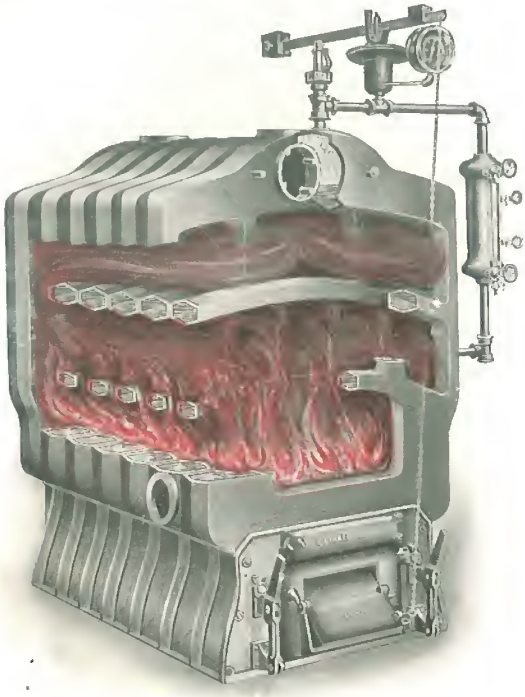
How often is it necessary to refill boiler with water?

The same water is used over and over and over again. It is not necessary that a hot water or a steam plant should be supplied direct from the street water main, as the system when once filled requires but a small amount of water to replace the loss due to evaporation; hence boilers, either steam or water, are installed in farm houses and other buildings remote from waterworks supply. A few gallons only of water need be added once or twice during the heating season.

Why soft coal requires larger boilers

For burning soft coal it is wise to select a boiler one size larger than would be selected for hard coal. Sometimes two sizes larger grate will be required if a steady steam pressure is desired for six or eight hours.

More heat can be produced with a given bulk of hard coal than with the same bulk of soft coal, therefore a greater coal carrying capacity is needed for soft coal than for hard coal. It is also true that in many parts of the country the soft coals are of such inferior qualities that they vary in heating value per pound from twenty to fifty per cent less than is contained in a pound of Pennsylvania anthracite of good quality. A soft coal boiler requires a large fire-box, large combustion space and self-cleaning surfaces. Our IDEAL Sectional Boilers have these features and are made in a wide range of sizes. See illustrations, pages 48 to 52. See also our IDEAL Premier Soft Coal Boilers, illustrated on page 55.



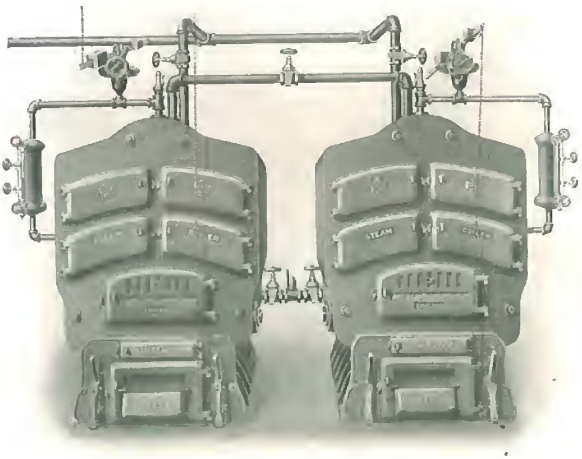
Twinned boilers or boilers set in batteries

One of our largest customers in the Northwest, who installs several hundreds of our boilers annually, writes us:

"We find it advisable, in this climate, in good size residences, to use the twin boiler hot water system, as we only have about three weeks of extreme cold weather in Minnesota. One boiler will do the work all winter with the exception of about three weeks, and while the original cost of the plant is a little more, the extra boiler will be saved in fuel. We have experimented some along this line with the above result."

His experience is one of many, particularly in those portions of the country where the temperature changes are so sudden and so wide.

For heating large residences, churches, schools, greenhouses, hospitals, institutions and other large public and private buildings, our boilers are set in batteries of two or more. When used in this way they not only give excellent results, but are especially economical in the burning of fuel, a small fire in one boiler often answering the purposes in moderate weather and at less expense.



Supply of hot water for domestic uses

Often a houseowner desires to also use a boiler for heating water for domestic or other purposes—for bath tubs, wash-basins, laundry and kitchen supply, etc. All of the IDEAL Boilers are made with cored holes leading into the fire chamber, through which pipes can be run to coils or return bends placed inside, for heating water for these purposes.

If the amount of hot water required is excessive and makes a large demand on the reserve capacity of the boiler, it is much better to use a larger boiler in order to make up for the amount of power taken from the regular capacity of the boiler.

In such cases, it is still better (if proper chimney flue can be secured) to invest the additional money required for more boiler capacity in a separate IDEAL Tank Heater. No more fuel is required, and the purely independent results secured to the house warming and to the other service fully make up for the extra care of running one more small fire.

An independent Tank Heater is also desirable, as it can be used in summer when the heating apparatus is out of use.

Materials

Every pound of iron and all other material entering into the construction of our boilers is not only carefully selected, but also subjected to the most severe tests and analysis. The result is a product of uniform thickness, smooth outer and inner surfaces, toughness without brittleness, and, above all, a granular formation of the metal extremely high in radiating efficiency. The quality distinguishes.

Our service

The houseowner can be assured in buying our goods that shipments are made very promptly from our twenty-one warehouses situated at very convenient shipping points throughout the United States. In our shipping departments, as in our manufacturing departments, every man is a specialist. Greatest care is taken to thoroughly box and crate all parts necessary—so that shipments will arrive at destination intact, and no parts missing.

We believe that these points are of great importance to the man who wants his boiler set up within a limited time, and we go to particular pains in making our service prompt, reliable and safe.

Our guarantee

Recognizing that in the past much annoyance and no inconsiderable expense have been incurred by the fitter because many boilers have been overrated, no care or pains have been spared to ascertain that the IDEAL Boilers are safely and conservatively rated, and satisfactory operation is assured where proper care has been exercised in their erection. They are made in a superior manner, and guaranteed absolutely free from mechanical defects.

Awarded the Grand Prix at Paris, 1900

The Paris Exposition Universelle, 1900, awarded the Grand Prix to IDEAL Boilers and AMERICAN Radiators.

Substantially, the term implies *the superlative*, and this is better understood when we state that the Grand Prix is awarded to but *one exhibitor in a class*, which in our case was Class 74, *comprising the entire exhibits of all forms of heating and ventilating apparatus*.

Selecting a proper size boiler

It is desirable and important that in selecting a heating apparatus the capacity should be somewhat beyond rather than below the actual requirements of the building, for these reasons:

First—It not only insures ample warmth at all times, but gives some reserve capacity to provide against exceptionally cold weather, or temporarily to furnish a higher degree of warmth when illness of any of the occupants of the house so demands.

Second—Particularly in a hot-water system, the greater the amount of radiating surface there is in a room, the lower it will be necessary to maintain the temperature of the radiators to furnish adequate warmth to the surrounding air. In other words, the lower the temperature of the radiating surfaces, by which the air is warmed, the more completely does the air retain its natural purity and vitality. The *uniformity* of the temperature of the freshly pure air is also thus best maintained, and drafts or overheating prevented.

Third—By having a boiler of ample size or capacity, a much slower combustion of the fuel is permissible. In consequence, the water surrounding the fire surfaces of the boiler will be cooler and the greater will be the proportion of heat which the water will absorb. Fuel will thereby be saved, as, if the surfaces were hotter the water could not as greedily and completely absorb the heat, and a greater percentage of the heat would therefore be allowed to escape to or be wasted at the chimney.

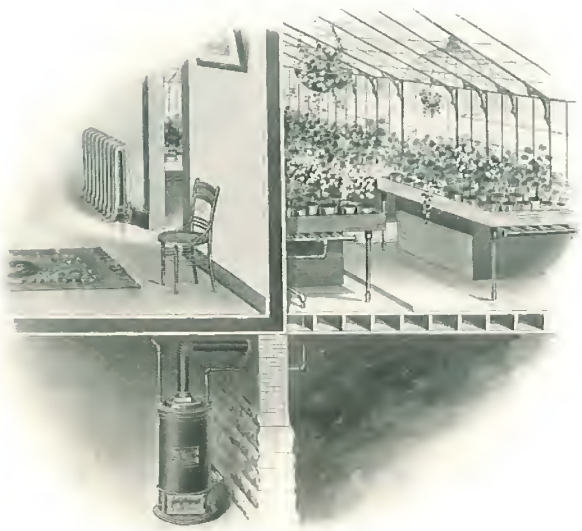
Fourth—By having a boiler of ample capacity, the fire is so regulated that no more fuel is used than the amount needed to warm the air in the rooms to the degree of temperature desired. In IDEAL Boilers a slow combustion of the fuel is maintained—it has been aptly said that in these boilers "the fire dwells and dwells." Aside from the advantage of securing a more thorough combustion of the fuel, a slow, deep fire also means far less care and attention.

Selecting a proper size boiler — Continued

Fifth—The mains and risers, or piping, should be of ample size, so that there can not be any possibility of friction or choking (more commonly termed "pounding in the pipes"), which, in turn, means inefficiency or waste of fuel.

Sixth—To attempt to operate a boiler having a capacity of say 1,500 square feet to carry 1,800 square feet of direct radiation is as destructive and wasteful as, in a similar way, would be the effort to employ a 10 horse-power engine to carry the load of a 20 horse-power engine, or to expect a 1,000-pound horse to draw a 3-ton load.

The difference in cost between a properly proportioned heating system as compared with one penuriously proportioned is too small to jeopardize the success of the investment. The dollars so withheld will, as surely as the continuation of time, have to be paid out over and over again in loss of comfort, waste of fuel, and greater care, aside from cost of probable repairs and alterations. Money judiciously expended is well invested.



Chimneys

No boiler has what is called a "draft." It is the chimney which produces the draft, and the taller the chimney the stronger the draft.

The chimney should be as straight as possible, free from bends or offsets. This is violated frequently, where solely for the purpose of lending attractiveness to the architectural design the chimney is inclined to some special and abrupt angle, or else the size of the flue is inadvertently decreased by recessed or panel designs.

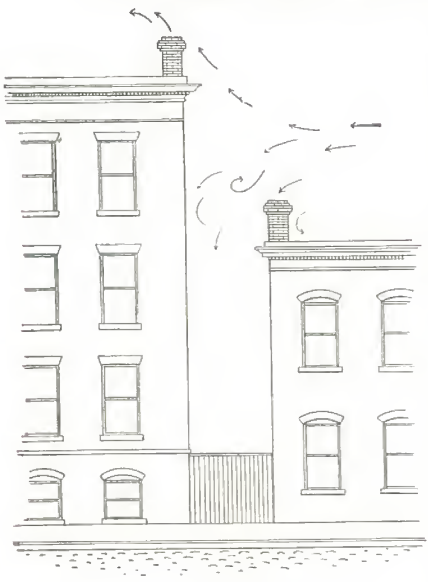


Fig. G

Round or oval is the best form, as smoke and gases pass up with less resistance in a round flue than in a square one. It is, however, difficult on account of expense and other considerations, to prevail upon the owner to build such a flue, and in consequence the general form adopted is that of a square or rectangle. The square flue is much more effective than the rectangular form, on account of the previously mentioned cause—friction. As, for example, a flue 12 x 12, having an area of 144 square inches, has a perimeter of only 48 inches, while a flue of 8 x 18, having an area of 144 square inches, has a perimeter of 52 inches, giving 4 inches additional surface for friction. For the requirements of an ordinary house heating apparatus, the flue should not be less than 8 x 12, or 96 square inches.

When we consider that every pound of coal burned in a cast-iron house heating boiler requires for its perfect combustion 300 cubic feet of air, we will realize that volume also is as essential as draft.

Chimneys — Continued

The pipe entering the chimney must go through the thickness of the brick, but must not go any farther, as such would injure the draft (see Figs. A and B). Lead the pipe into the chimney in the most direct way. Use only one elbow, if possible; every turn in the pipe injures the draft. Round elbows are much better than square elbows. Be quite sure that the opening around the pipe where it enters the chimney is closed up tight. If the chimney opening is too small to admit the smoke pipe of boiler, see to it that the chimney flue be made larger. Don't reduce the size of the pipe. If there is an opening into flue below the point where smoke pipe enters chimney, care should be taken to see that the door or cover is made tight. For the guidance of those engaged in the installation of steam and hot water boilers, we illustrate hereinafter a few of the causes why boilers are condemned when the fault is solely in the chimney.

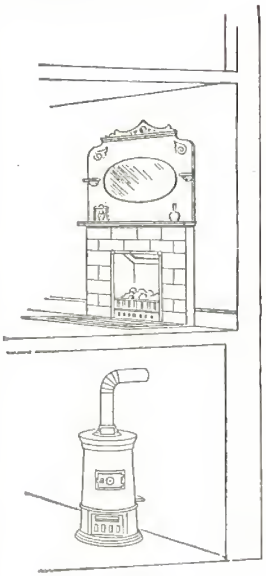
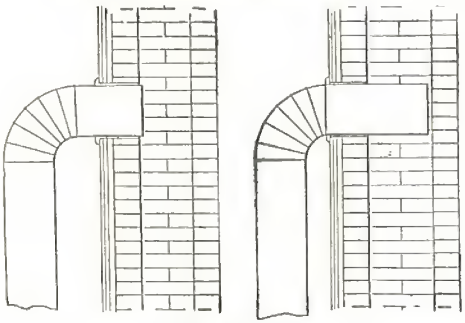


Fig. C

First—Complaint may be made that the boiler will not operate, although the smoke pipe is carefully fitted into a chimney that has a good draft, and which has been in use for many years. Investigation shows that it is attached to a chimney which has more than one opening (see Fig. C). It is essential that all openings into the flue, no matter of what kind, excepting the one to which the boiler is attached, should be securely closed. This applies with equal force to openings which are sometimes made in chimneys for ventilating.

Second—The chimney, into the flue of which the boiler is connected, may be much lower than the main part of the house, or below the comb of the roof. The wind blowing over the comb of the house falls like water over a dam, sometimes almost perpendicularly on the top of the chimney; thus beating down the smoke contained therein (see Figs. E, F and G). The remedy is to build up the chimney, or add a smoke stack of galvanized iron, so that its top shall be above the main building. In adding a smoke stack or patent cap to the top of the chimney, care must be taken to see that such addition does not decrease the area of the flue (see Fig. H on page 47); for it will be conceded that the effectiveness of a flue is only as great as its smallest area.



Figs. A and B

Third—A tall tree, or an adjacent building higher than the one in which the boiler is to be installed, may be so near the chimney that the wind passing over it would blow down the chimney, as in the preceding illustration (see Figs. F and G).

Fourth—A new or damp chimney will not have a perfect draft. A chimney will not draw perfectly until it is thoroughly dry, which sometimes requires several weeks.

Fifth—In building a chimney, mortar may be dropped from time to time and lodge out of sight so as to partially close the chimney (see Fig. I). A

Chimneys — Continued

heavy weight may be let down by a rope and worked against the sides of the flue, to force a clear opening.

Sixth—In an old chimney the mortar may have crumbled between the bricks (see Fig. J), so that it leaks air and spoils the draft. In a chimney lined with tile, it is important to see that the joints between the tiles are carefully "pointed" or filled in (see Fig. K).

Fig. F

Seventh—It is not infrequent to find that a chimney which has a flue, say 8 x 12, or 96 square inches, is surmounted by an ornamental cap-stone through which are cut two openings, say 6 x 5, or 60 square inches. The owner is apparently all unmindful of the fact that unwittingly he has thereby reduced the area of the chimney flue 37½ per cent. It is as though a person were to attempt to breathe through a piece of paper perforated by several pin pricks.

Eighth—To summarize: All the air that passes through the chimney should first pass through the fire, unless used to check draft.

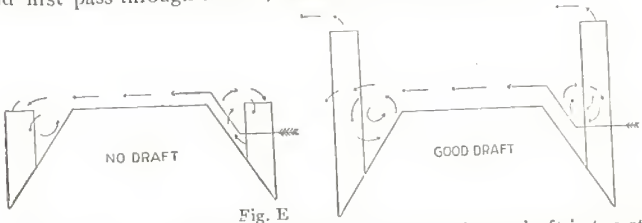


Fig. E

There are occasional instances where it is found that a draft is too strong. A condition of this kind causes an unnecessary, wasteful consumption of fuel, and the effect also is to produce an unsteady water line, to carry water in a steam boiler up into the system, and causing water-hammer or "pounding in the pipes." The difficulty is easily remedied by placing a damper, to check the draft, in the smoke pipe of the boiler.

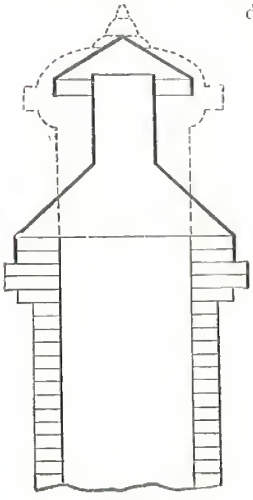


Fig. H

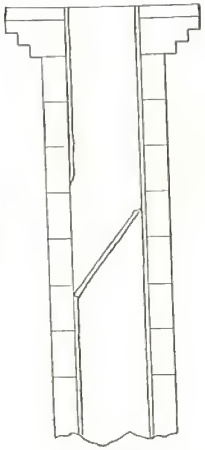


Fig. I

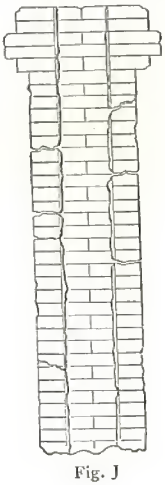


Fig. J

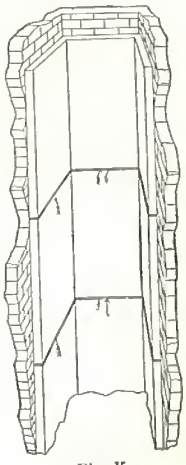


Fig. K

Ideal Sectional Steam Boilers

With 15-inch Grates

With 18-inch Grates

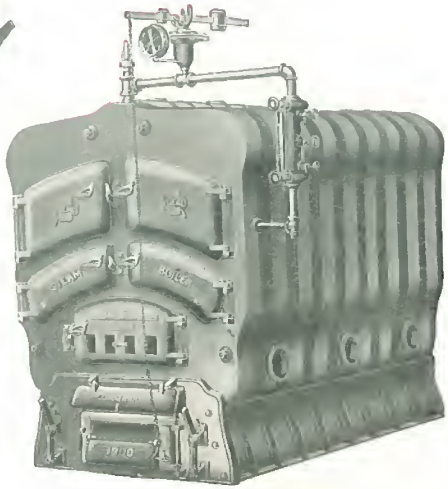
With 21-inch Grates

The above Boilers are made in sizes ranging in capacity from 375 to 1,200 feet of direct radiation. They range in total height from 46½ inches to 58 inches; in width from 28½ inches to 40 inches; in length from 27½ to 49 inches. For detailed measurements of each size see page 64.

Ideal Sectional Steam Boilers—Continued

With 24-inch Grates

With 30-inch Grates



With 36-inch Grates

The above Boilers are made in sizes ranging in capacity from 900 to 3,600 feet of direct radiation. They range in total height from 62 inches to 72 inches; in width from 40 inches to 60 inches; in length from 39 to 80 inches. For detailed measurements of each size see page 64.

Ideal Sectional Water Boilers

With 15-inch Grates

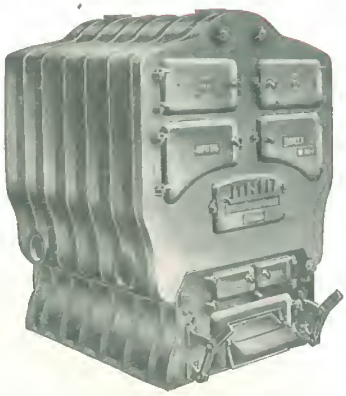
With 18-inch Grates

With 21-inch Grates

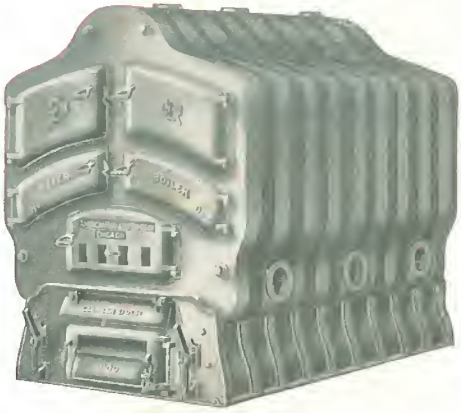
The above Boilers are made in sizes ranging in capacity from 625 to 2,000 feet of direct radiation. They range in total height from 42½ inches to 55 inches; in width from 27½ inches to 39 inches; in length from 27½ to 49 inches. For detailed measurements of each size see page 64.

Ideal Sectional Water Boilers—Continued

With 24-inch Grates



With 30-inch Grates



With 36-inch Grates

The above Boilers are made in sizes ranging in capacity from 1,500 to 5,950 feet of direct radiation. They range in total height from 59 inches to 72 inches; in width from 40 inches to 57 inches; in length from 39 to 80 inches. For detailed measurements of each size see page 64.

A word about Ideal Coke Boilers

We also show illustrations of IDEAL Boilers especially made for burning coke. The features of these special boilers are in general the same as in other IDEAL Sectionals; they vary only in certain points necessary to obtain most thorough and most economical results from burning coke.

Heretofore the sole objection to coke has been the frequent attention required in firing. In IDEAL Coke Boilers this has been overcome, as a charge of coke is made to burn as long a time as does hard coal.

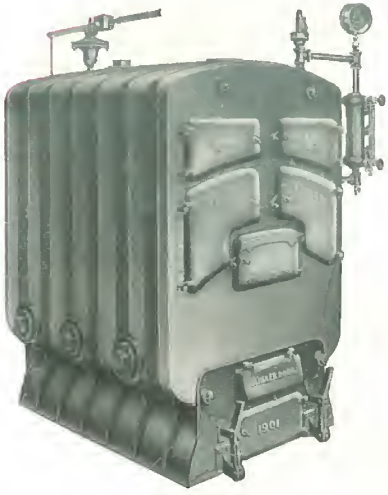
Foreseeing the coming importance of coke as fuel, appreciating its strong heating value, its opportunities for saving in cost (coke usually rules considerably lower in price than hard coal) its cleanly, dustless character, we have brought out this successful boiler, which has already had two years of winter work to prove its value. Coke does away with about all dirt and dust in the cellar, furnishing a fuel which in the IDEAL Coke Boiler makes quick response, a very hot fire, very little ashes, and almost no soot.

Ideal Coke Boilers

IDEAL
No. 2-7 Coke Steam Boiler

IDEAL
No. 3-7 Coke Steam Boiler

IDEAL
No. 4-6 Coke Steam Boiler
(Rear view)



IDEAL
No. 5-7 Coke Steam Boiler

The above Boilers are made in sizes ranging in capacity from 225 to 2,600 feet of direct radiation. They range in total height from 54 inches to 72⅜ inches; in width from 24 inches to 48 inches; in length from 26¾ inches to 72⅜ inches. For detailed measurements of each size see page 65.

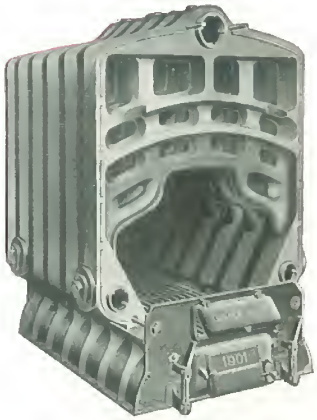
Ideal Coke Boilers — Continued

IDEAL
No. 2-7 Coke Water Boiler

IDEAL
No. 1-4 Coke Water Boiler
or Tank Heater
(See pages 60 and 61)

IDEAL
No. 3-7 Coke Water Boiler

IDEAL
No. 4-6 Coke Water Boiler



IDEAL
No. 5 Coke Water Boiler
(Front section removed to
show inner construction)

The above Boilers are made in many sizes, ranging in capacity from 250 to 4,300 feet of direct radiation. They range in total height from 40 inches to 69⅜ inches; in width from 17 inches to 48 inches; in length from 19 inches to 80 inches. For detailed measurements of each size see page 65.

Boilers with round grates and firepots

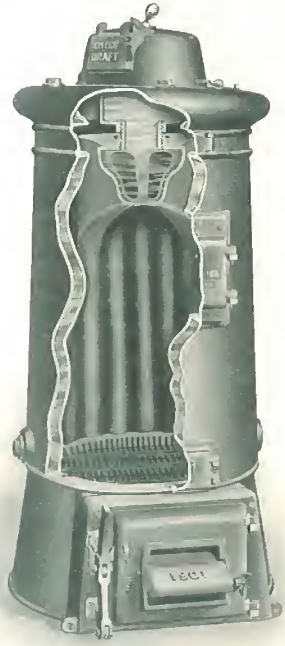
In the several types of IDEAL Round Boilers illustrated on pages 55 to 60 are embodied substantially all the features common to the IDEAL Sectional Boilers with square or oblong firepots and grates. These features are, of course, changed somewhat in form to best suit their application to the work which each type or size of boiler is to perform. In other words, every IDEAL Boiler, either sectional or round, has all the "family" characteristics as previously outlined, yet so adapted, grouped or arranged that the one desired object is attained, viz.: the performance of the boiler as a whole in the class of heating work for which it is specially designed. As stated, these features include:

Correctly proportioned water ways for free, rapid circulation;

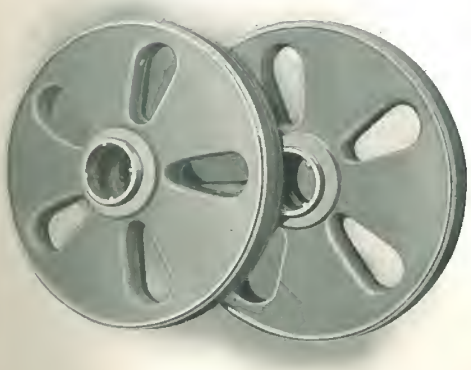
Fire and flue surfaces all backed by water and so arranged that the heat rays will impinge upon every inch of their area;

Air burning features fully developed;

Overhanging fire surfaces;



Ideal Premier Junior Boiler
(open view)



Ideal Premier Hard Coal Sections

Liberal steam dome;

Deep fire pots;

Large fire door; and large ash-pit door, with butterfly damper;

Convenient smoke pipe check dampers;

Flue doors so placed as to permit of easy cleaning of all flue surfaces;

Boilers with round grates and firepots—Continued

Cast-iron nipples making a perfectly tight and permanent joint, without any kind of packing;

Easy operating grates, built upon the rocking and dumping principles, with lug to prevent accidental dumping;

Liberal size ash-pit, with large opening to permit easy removal of ashes;

Damper regulators, Water Columns, Relief Valves and other trimmings and fire tools all of the latest and most approved patterns.

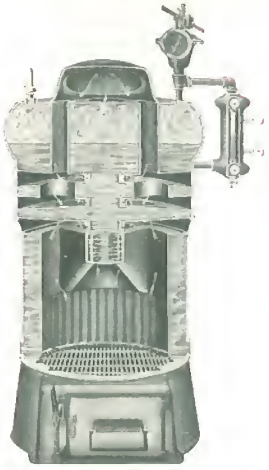
Ideal Premier Soft Coal Sections

The Premier Round Boilers are constructed with radial arms at top of the fire pot section, which overhanging surface is particularly effective. The IDEAL Premier Boiler is a specially powerful and efficient heater when used with either hard or soft coal as fuel; and, as will be seen from the illustrations, different forms of sections are furnished where it is intended to use one or the other kind of coal.

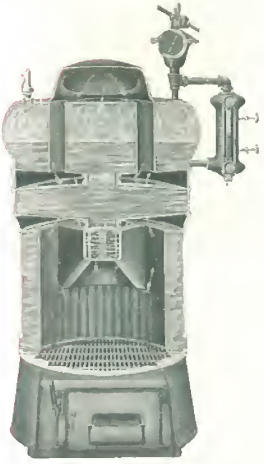
Ideal Premier Base (grate tilted)

The Portable and the Invincible Round Boilers are recommended for use with hard coal as fuel; and their construction is designed upon that basis only. (See paragraph on fuels, page 35.)

Ideal Premier Round Boilers



IDEAL
Premier Hard Coal Steam
Boiler
(open view)



IDEAL
Premier Soft Coal Steam
Boiler
(open view)

IDEAL
Premier Junior Water
Boiler or Tank Heater
(See pages 60 and 61)

IDEAL
Premier Hard Coal Water
Boiler

IDEAL
Premier Soft Coal Water
Boiler

The above Boilers are made in many sizes, ranging in capacity upward from 60 feet of direct radiation. They range in height from 31 inches to 75 inches; in diameter from 18 to 46 inches. For detailed measurements of each size see page 66.

Ideal Round Boilers—Continued

IDEAL
Arco Steam Boiler

IDEAL
Arco Water Boiler

IDEAL
Portable Steam Boiler

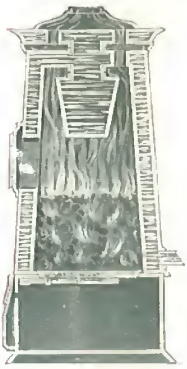
IDEAL
Portable Water Boiler
(open view)

IDEAL
Portable Water Boiler

The above Boilers are made in many sizes, ranging in capacity upward from 200 feet of direct radiation. They range in total height from 43 inches to 80¾ inches; in diameter from 29 inches to 52 inches. For detailed measurements of each size see pages 67 and 69.

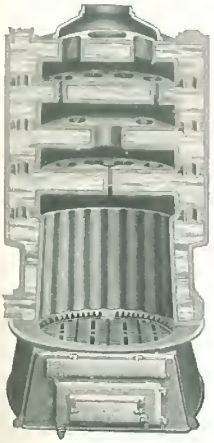
Ideal Round Boilers—Continued

IDEAL
Junior Steam Boiler



IDEAL
Junior Water Boiler or
Tank Heater
(open view)
See pages 60 and 61

IDEAL
Invincible Steam Boiler



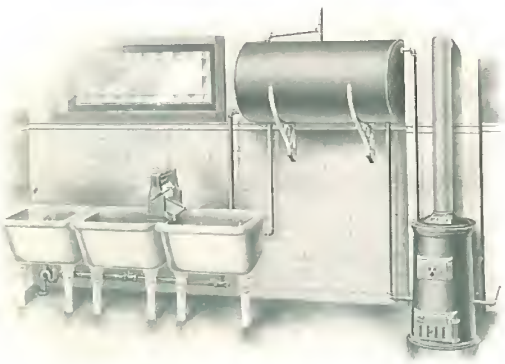
IDEAL
Invincible Water Boiler
(open view)

IDEAL
Invincible Water Boiler

The above Boilers are made in many sizes. They range in total height from 31 inches to 79 inches; in diameter from 18 inches to 52 inches. For detailed measurements of each size see pages 68 and 70.

An abundant supply of hot water

has become a daily, hourly necessity for domestic and many other uses. In heating the occasional kettle of water, usually not more than 10 per cent. of the heat is imparted to the water, the other 90 per cent. of the heat escapes or is dissipated into the surrounding atmosphere.

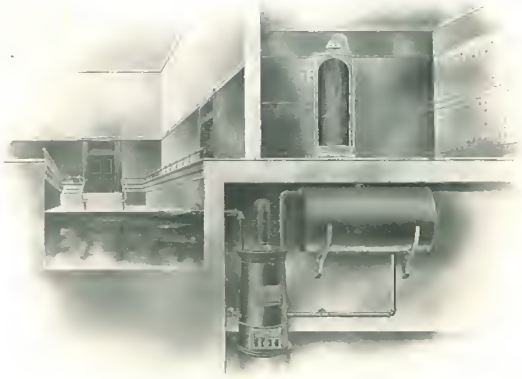


IDEAL Tank Heater supplies an abundance of hot water for laundry purposes

IDEAL Tank Heaters utilize all of the heat available, hence produce fifty times the quantity of water from the same amount of fuel.

We mention a few of the many purposes for which our IDEAL Tank Heaters are employed:

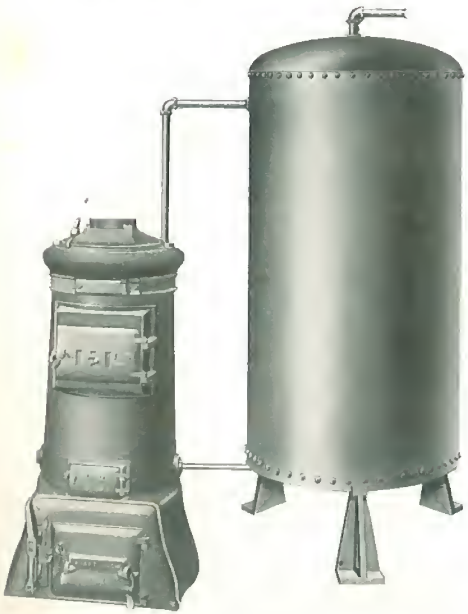
Bill-posting concerns (for paste pots). Brooding houses. Barber shops. Bakeries (for cooking and baking). Bathing establishments. Bottling concerns (for bottle washings). Carriage houses and stables. Central station heating (also for economizing coils of indirect radiators for individual meters). Church baptisteries. Circus advertising cars (for paste pots). Dairy buildings and milk depots. Dyeing establishments. Fishing and hunting lodges. Farm buildings. Fruit ripening rooms in Commission houses. Fruit dryers or evapora-



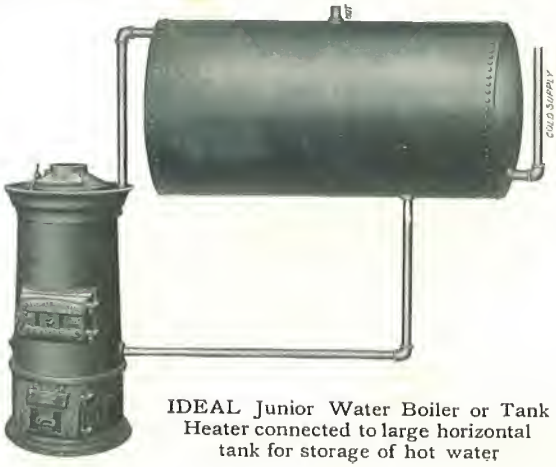
IDEAL Tank Heater supplies abundance of hot water to bathing pool and shower bath

An abundant supply of hot water — Continued

tors. Fish hatcheries. Fire department houses (for heating and warming water while engines are in station). Fire protection water storage (to keep water therein from freezing). Greenhouses. Gasoline engines (for cooling cylinders). Hospital uses (in operating rooms). Livery stables (for washing carriages). Laundries. Laboratories. Natatoriums. Paint and enamel tanks (to keep same at temperature for dipping). Railroad fruit cars. Railroad water tanks (for keeping water from freezing). Railroad passenger depots. Railroad switch towers. Refrigerating purposes. Restaurants (tank heaters for carving tables). Residences, hotels and boarding houses (special purposes). Stock raising buildings (for fodder, etc.) Seashore cottages (early spring and late fall). Vegetable storage houses. Ventilating ducts (to assist the draft). Waterworks buildings (to prevent freezing at points).

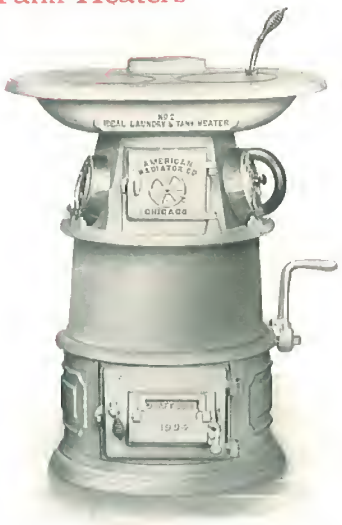


IDEAL Premier Junior Tank Heater connected to vertical tank for storage of hot water



IDEAL Junior Water Boiler or Tank Heater connected to large horizontal tank for storage of hot water

Ideal Laundry and Tank Heaters



We make the IDEAL Laundry and Tank Heaters as a handy and economical means of heating water for laundry and other purposes of the household which require flat-iron heating in the laundry room; and water hot and plenty in the bath room, pantry, kitchen, toilet and other rooms.

They present a large, double-griddle top for the specific purpose named or for heating water in wash-boilers on wash-days, and for heating preserving kettles in canning time.

Their various features will commend them to houseowners, hotel and restaurant keepers, laundry proprietors, to hospitals and other public and private institutions.

The fire-pot is deep and has ample holding capacity for coal, thus requiring very little attention to the fire.

The fire-pot is hollow, thus forming the water heating cylinder.

The lower iron-heating surfaces have nine sides or spaces available for warming flat-irons. Besides which the flat, double-griddled top heats six to eleven flat-irons, according to size.

The utmost simpleness is worked into this construction. Only three parts to connect. Very easily set up — requiring but a few minutes' time to put them together and ready for the fire.

Burn all varieties of good fuels.

They can be cleaned of soot in less than a minute.

Summary

The aim of this book is to make you a better judge of your needs. Our interests are entirely on the side of good judgment.

Artificial heat is necessary for our individual comfort and progress.

It is an indisputable fact that water is by far the best receiver, carrier and deliverer of heat.

Therefore plain, common sense directs us to heat as much water as we can with as little fuel as possible.

The search then is for an apparatus which will do the work desired with the greatest economy in fuel cost, the least amount of care, and the least amount of wear.

IDEAL Boilers reflect a half century of progress in designing the construction of heating boilers. Each tiny portion, with studied care, is placed just where it will be most efficient, here shrinking away to give the products of combustion a chance to combine and burn, there leaning far out to receive the caress and radiant heat of the perfect flame. Every inch of heating surface exacts its full quota of heat, only to impart it to the water, which is ever at hand to hurry it along through the hollow walls of the boiler and through the piping to the hollow, beautifully ornamented, graceful "AMERICAN" Radiators stationed in the rooms above.

IDEAL Boilers are a good investment for the old or new building—enhance its value as well as its comfort.

They have unquestionably raised the standard of home comfort—have brought about a perfect, *automatic control* of indoor temperature and relieved the household of dirt and drudgery. And these great gains are all paid for—for you—in the less amount of fuel burned and absence of repairs.

Ideal Sectional Steam Boilers

No.	Sections	L'gth with Smoke hood Inches	Total Hight Inches	Total Width Inches	Hight Water Line, Inches	Foundation, Inches	Grate, Inches	Outlets, Inch's	Smoke Pipe, In.	Ratings, (Note Page 69)	Price Complete
S-15-5	5	40⅞	46¼	28½	38¾	24 x29	15x24½	2-3	8	425	$227 50
S-15-6	6	47⅛	46¼	28½	38¼	24 x35	15x30¾	2-3	8	550	265 00
S-15-7	7	53⅜	46¼	28½	38¼	24 x41	15x37	2-3	8	675	302 50
S-15-8	8	59⅝	46¼	28½	38¼	24 x47	15x43¼	2-3	8	800	340 00
084	4	40¼	55⅛	28	44½	24 x26⅝	18x18¾	2-3	8	375	212 50
085	5	46¼	55⅛	28	44½	30 x26⅝	18x24¾	2-3	8	500	250 00
086	6	52¼	55⅛	28	44½	36 x26⅝	18x30¾	2-3	8	625	287 50
087	7	58¼	55⅛	28	44½	42 x26⅝	18x36¾	2-3	8	750	325 00
S-21-5	5	50¼	58⅜	40	48	30¾x36	21x28	2-4	10	800	340 00
S-21-6	6	57¼	58⅜	40	48	30¾x43	21x35	2-4	10	1000	400 00
S-21-7	7	64¼	58⅜	40	48	30¾x50	21x42	2-4	10	1200	460 00
045	5	53⅜	61⅝	40½	49½	35 x33½	24x27½	2-4	12	900	370 00
046	6	60⅝	61⅝	40½	49½	42¾x33½	24x34¾	2-4	12	1100	437 50
047	7	67⅞	61⅝	40½	49½	49½x33½	24x42	2-4	12	1300	505 00
048	8	75⅛	61⅝	40½	49½	56¾x33½	24x49¼	3-4	12	1500	572 50
S-30-5	5	56¼	69⅜	51	58½	32 x40	30x28	2-4	13	1275	482 50
S-30-6	6	63¼	69⅜	51	58½	39 x40	30x35	2-4	13	1625	587 50
S-30-7	7	70¼	69⅜	51	58½	46 x40	30x42	2-4	13	1975	692 50
S-30-8	8	77¼	69⅜	51	58½	53 x40	30x49	3-4	13	2325	790 50
065	5	57	71½	61⅛	61	43 x49½	36x32⅜	2-5	14	1800	640 00
066	6	65¼	71½	61⅛	61	51¼x49½	36x40⅝	2-5	14	2250	770 00
067	7	73½	71½	61⅛	61	59½x49½	36x48⅞	2-5	14	2700	882 00
068	8	81¾	71½	61⅛	61	67¾x49½	36x57⅛	3-5	14	3150	974 00
069	9	90	71½	61⅛	61	76 x49½	36x65⅜	3-5	16	3600	1064 00

Ideal Sectional Water Boilers

No.	Sections	Length with Smoke hood Inches	Total Height Inches	Total Width Inches	Foundation Inches	Grate Inches	Outlets Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
W-15-5	5	40⅞	42½	27½	24 x29	15x24½	2-3	8	700	$217 50
W-15-6	6	47⅛	42½	27½	24 x35	15x30¾	2-3	8	900	255 00
W-15-7	7	53⅜	42½	27½	24 x41	15x37	2 3	8	1100	292 50
W-15-8	8	59⅝	42½	27½	24 x47	15x43¼	2-3	8	1300	330 00
184	4	40¼	52	28	24 x26⅝	18x18¾	2-3	8	625	202 50
185	5	46¼	52	28	30 x26⅝	18x24¾	2 3	8	825	240 00
186	6	52¼	52	28	36 x26⅝	18x30¾	2-3	8	1025	277 50
187	7	58¼	52	28	42 x26⅝	18x36¾	2-3	8	1250	315 00
W-21-5	5	50¼	54⅞	39	30¾x36	21x28	2 4	10	1325	330 00
W-21-6	6	57¼	54⅞	39	30¾x43	21x35	2-4	10	1650	390 00
W-21-7	7	64¼	54⅞	39	30¾x50	21x42	2-4	10	2000	450 00
245	5	53⅜	58¾	40½	35 x33½	24x27½	2-4	12	1500	360 00
246	6	60⅝	58¾	40½	42¼x33½	24x34¾	2-4	12	1825	427 50
247	7	67⅞	58¾	40½	49½x33½	24x42	2-4	12	2150	495 00
248	8	75⅛	58¾	40½	56¾x33½	24x49¼	3-4	12	2475	562 50
W-30-5	5	56¼	65¼	50	32 x40	30x28	2-4	13	2100	472 50
W-30-6	6	63¼	65¼	50	39 x40	30x35	2-4	13	2675	577 50
W-30-7	7	70¼	65¼	50	46 x40	30x42	2-4	13	3250	682 50
W-30-8	8	77¼	65¼	50	53 x40	30x49	3-4	13	3825	780 50
365	5	57	71½	57½	43 x49½	36x32⅜	2-5	14	2975	630 00
366	6	65¼	71½	57½	51¼x49½	36x40⅝	2-5	14	3700	750 00
367	7	73½	71½	57½	59½x49½	36x48⅞	2 5	14	4450	862 00
368	8	81¾	71½	57½	67¾x49½	36x57⅛	3-5	14	5200	954 00
369	9	90	71½	57½	76 x49½	36x65⅜	3-5	16	5950	1044 00

Ideal Coke Steam Boilers

No.	Sections	L'gth with Sm'ke hood In.	Total Hight In.	Total Width In.	Hight Water Line In.	Foundation Inches	Grate Inches	Average Firepot Inches	Outlets In.	Smoke Pipe in.	Ratings (See Note Page 69)	Price Complete
S-2-4	4	26¾	54	24	44	22 x19½	10x15¾	15 x15¾	2-2	7	225	$140 00
S-2-5	5	32	54	24	44	22 x24¾	10x21	15 x21	2-2	7	300	170 00
S-2-6	6	37¼	54	24	44	22 x30	10x26¼	15 x26¼	2-2	7	375	200 00
S-2-7	7	42½	54	24	44	22 x35¼	10x31½	15 x31½	2-2	7	450	230 00
S-3-5	5	37	56¼	30½	46½	27½x29⅞	12x25	18 x25	2-3	9	500	260 00
S-3-6	6	43¼	56¼	30½	46½	27½x36⅛	12x31¼	18 x31¼	2-3	9	600	295 00
S-3-7	7	49½	56¼	30½	46½	27½x42⅜	12x37½	18 x37½	2 3	9	700	330 00
S-4-5	5	43¼	66	36	56½	33⅝x34⅛	17x29	24⅛x29	2-4	12	800	375 00
S-4-6	6	50½	66	36	56½	33⅝x41⅜	17x36¼	24⅛x36¼	2-4	12	1000	445 00
S-4-7	7	57¾	66	36	56½	33⅝x48⅝	17x43½	24⅛x43½	2-4	12	1200	515 00
S-5-5	5	46⅝	72⅜	48	62	40 x38	22x32½	32 x32½	2-4	12	1400	600 00
S-5-6	6	54⅞	72⅜	48	62	40 x46¼	22x40¾	32 x40¾	2-4	12	1700	690 00
S-5-7	7	63⅛	72⅜	48	62	40 x54½	22x49	32 x49	3-4	12	2000	780 00
S-5-8	8	71⅜	72⅜	48	62	40 x62¾	22x57¼	32 x57¼	3-4	12	2300	870 00
S-5-9	9	79⅝	72⅜	48	62	40 x71	22x65½	32 x65½	4-4	12	2600	960 00

Ideal Coke Water Boilers

No.	Sections	L'gth with Sm'ke hood In.	Total Hight In.	Total Width In.	Foundation Inches	Grate Inches	Average Firepot Inches	Outlets In.	Smoke Pipe Inches	Ratings (See Note Page 69)	Price Complete
W-2-4	4	26¾	49¼	24	22 x19½	10x15¾	15 x15¾	2-2	7	375	$130 00
W-2-5	5	32	49¼	24	22 x24¾	10x21	15 x21	2-2	7	500	160 00
W-2-6	6	37¼	49¼	24	22 x30	10x26¼	15 x26¼	2-2	7	625	190 00
W-2-7	7	42½	49¼	24	22 x35¼	10x31½	15 x31½	2-2	7	750	220 00
W-3-5	5	37	51¾	30½	27½x29⅞	12x25	18 x25	2-3	9	875	250 00
W-3-6	6	43¼	51¾	30½	27½x36⅛	12x31¼	18 x31¼	2-3	9	1000	285 00
W-3-7	7	49½	51¾	30½	27½x42⅜	12x37½	18 x37½	2-3	9	1150	320 00
W-4-5	5	43¼	62½	36	33⅝x34⅛	17x29	24⅛x29	2-4	12	1325	365 00
W-4-6	6	50½	62½	36	33⅝x41⅜	17x36¼	24⅛x36¼	2-4	12	1650	435 00
W-4-7	7	57¾	62½	36	33⅝x48⅝	17x43½	24⅛x43½	2-4	12	2000	505 00
W-5-5	5	46⅝	69⅜	48	40 x38	22x32½	32 x32½	2-4	12	2325	590 00
W-5-6	6	54⅞	69⅜	48	40 x46¼	22x40¾	32 x40¾	-4	12	2800	675 00
W-5-7	7	63⅛	69⅜	48	40 x54½	22x49	32 x49	3-4	12	3300	760 00
W-5-8	8	71⅜	69⅜	48	40 x62¾	22x57¼	32 x57¼	3-4	12	3800	845 00
W-5-9	9	79⅝	69⅜	48	40 x71	22x65½	32 x65½	4-4	12	4300	930 00

Ideal Premier Steam Boilers

Hard Coal

No.	Height (to Top Outlet) Inches	Diameter Inches	Diameter Grate Inches	Height Water Line Inches	One Outlet Size Inches	Two Inlets Size Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
A-015	53½	22	15	48½	2	2	7	225	$123 00
A-018	56⅛	25	18	50⅛	2½	2	7	300	149 50
A-019	59¾	25	18	55½	2½	2	7	350	167 00
A-020	55¼	33	21	47½	2½	2½	9	400	193 00
A-021	60½	33	21	53	2½	2½	9	450	206 50
A-022	65½	33	21	58½	2½	2½	9	500	219 50
A-024	57¼	36⅜	24	49	3	3	9	550	232 50
A-025	62	36⅜	24	54	3	3	9	600	246 00
A-026	67¾	36⅜	24	59½	3	3	9	650	287 50
A-027	60	41¼	28	51	3½	3½	11	850	346 00
A-028	66½	41¼	28	57¼	3½	3½	11	925	367 50
A-029	71½	41¼	28	63¾	3½	3½	11	1000	389 50
A-031	63	46	32	53¼	4	4	11	1100	419 00
A-032	69	46	32	60	4	4	11	1200	448 00
A-033	75½	46	32	66¼	4	4	11	1300	477 00

Soft Coal

B-015	53½	22	15	48½	2	2	7	200	$123 00
B-018	56⅛	25	18	50⅛	2½	2	7	250	149 50
B-021	60½	33	21	53	2½	2½	9	400	193 00
B-022	65½	33	21	58½	2½	2½	9	450	206 50
B-025	62	36¾	24	54	3	3	9	500	219 50
B-026	67¾	36⅜	24	59½	3	3	9	600	246 00
B-028	66½	41¼	28	57¼	3½	3½	11	800	331 00
B-029	71½	41¼	28	63¾	3½	3½	11	900	360 50
B-032	69	46	32	60	4	4	11	1050	404 50
B-033	75½	46	32	66¼	4	4	11	1200	448 00

Ideal Premier Water Boilers

Hard Coal

No.	Height (to Top Outlet) Inches	Diameter Inches	Diameter Grate Inches	Size of Three Outlets Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
A-152	48½	22	15	2	7	375	$105 50
A-182	50¼	25¼	18	2	7	500	140 50
A-183	55¾	25¼	18	2	7	575	158 50
A-211	49¾	30⅜	21	2½	9	650	184 00
A-212	54¾	30⅜	21	2½	9	750	197 00
A-213	60¾	30⅜	21	2½	9	825	210 50
A-241	51¼	36⅜	24	3	9	900	224 00
A-242	56	36⅜	24	3	9	1000	237 00
A-243	61½	36⅜	24	3	9	1075	277 50
A-281	53¾	38⅝	28	3½	11	1400	336 00
A-282	60	38⅝	28	3½	11	1525	358 00
A-283	65	38⅝	28	3½	11	1650	380 00
A-321	56	46	32	4	11	1825	409 00
A-322	62¾	46	32	4	11	2000	438 50
A-323	69	46	32	4	11	2150	467 50

Soft Coal

B-152	48½	22	15	2	7	325	$105 50
B-182	50¼	25¼	18	2	7	400	140 50
B-212	54¾	30⅜	21	2½	9	650	184 00
B-213	60¾	30⅜	21	2½	9	750	197 00
B-242	56	34	24	3	9	825	210 50
B-243	61½	34	24	3	9	1000	237 00
B-282	60	38⅝	28	3½	11	1325	321 00
B 283	66	38⅝	28	3½	11	1500	350 50
B-322	62¾	43½	32	4	11	1725	394 50
B-323	69	43½	32	4	11	2000	438 50

Ideal Arco Steam Boilers

Hard Coal

No.	Height (to Top Outlet) Inches	Diameter Inches	Diameter Grate Inches	Height of Water Line Inches	Outlets No. and Size	Inlets No. and Size	Smoke Pipe Inches	Ratings (See Note Page 69)	Price Complete
2-19-S	57	30½	19	50	1-2½	2-2½	8	300	149 50
3-19-S	61½	30½	19	54½	1-2½	2-2½	8	350	167 00
2-22-S	58¾	35	22	53½	1-3	2-3	9	525	226 00
3-22-S	63¾	35	22	56⅞	1-3	2-3	9	575	240 00
2-25-S	61¾	38	25	54¼	1-3½	2-3½	9	625	277 50
3-25-S	66¾	38	25	59¼	1-3½	2-3½	9	700	300 00
2-28-S	62½	41⅜	28	56	1-4	2-4	10	900	360 50
3-28-S	67 7/16	41⅜	28	61¾	1-4	2-4	10	1000	389 50
2-31-S	66	44⅛	31	57¼	1-4	2-4	10	1275	470 00
3-31-S	71⅞	44⅛	31	63¼	1-4	2-4	10	1400	500 00
2-34-S	69	48⅞	34	59⅜	1-5	2-5	11	1500	530 00
3-34-S	75	48⅞	34	65½	1-5	2-5	11	1650	575 00

Soft Coal

1-19-S	52½	30½	19	40½	1-2½	2-2½	8	200	115 00
1-22-S	54¾	35	22	49	1-3	2-3	9	400	193 00
1-25-S	56¾	38	25	49¼	1-3½	2-3½	9	500	219 50
1-28-S	57¾	41⅜	28	50	1-4	2-4	10	800	331 00
1-31-S	60¾	44⅛	31	52½	1-4	2-4	10	1000	389 50
1-34-S	65⅝	48⅞	34	54¾	1-5	2-5	11	1250	462 50

Ideal Arco Water Boilers

Hard Coal

No.	Height (to Top Outlet) Inches	Diameter Inches	Diameter Grate Inches	Outlets No. and Size	Inlets No. and Size	Smoke Pipe Inches	Ratings (See Note Page 69)	Price Complete
2-19-W	50⅜	30½	19	2-2½	2-2½	8	500	140 50
3-19-W	54⅞	30½	19	2-2½	2-2½	8	575	158 50
2-22-W	52¼	35	22	2-3	2-3	9	875	217 50
3-22-W	57¼	35	22	2-3	2-3	9	950	230 00
2-25-W	55	38	25	2-3½	2-3½	9	1025	270 00
3-25-W	60	38	25	2-3½	2-3½	9	1150	290 00
2-28-W	55½	41⅜	28	2-4	2-4	10	1500	350 50
3-28-W	60½	41⅜	28	2-4	2-4	10	1650	380 00
2-31-W	59	44⅛	31	2-4	2-4	10	2100	457 50
3-31-W	64¾	44⅛	31	2-4	2-4	10	2325	495 00
2-34-W	61⅝	48⅞	34	2-5	2-5	11	2475	525 00
3-34-W	66⅝	48⅞	34	2-5	2-5	11	2725	565 00

Soft Coal

1-19-W	45⅞	30½	19	2-2½	2-2½	8	325	97 50
1-22-W	48¼	35	22	2-3	2-3	9	650	184 00
1-25-W	50	38	25	2-3½	2-3½	9	825	210 50
1-28-W	50½	41⅜	28	2-4	2-4	10	1325	321 00
1-31-W	54¼	44⅛	31	2-4	2-4	10	1650	380 00
1-34-W	56¼	48⅞	34	2-5	2-5	11	2075	450 00

Ideal Invincible Steam Boilers

No.	Sections	Height (to Top Outlets) Inches	Diameter Inches	Diameter Firepot Inches	Height of Water Line Inches	One Outlet and Two Inlets Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
113	2	48¼	29	19	42	2½	8	225	$123 00
114	3	54	29	19	48	2½	8	250	131 50
223	2	50½	32½	21	43	3	8	300	149 50
224	3	57	32½	21	49¼	3	8	350	167 00
225	4	63¼	32½	21	53¾	3	8	400	193 00
333	2	52½	36½	25	44	3½	9	450	206 50
334	3	59¼	36½	25	51	3½	9	500	219 50
335	4	66½	36½	25	58	3½	9	600	246 00
443	2	54¼	43	30	44¾	4	10	750	316 50
444	3	61¾	43	30	52½	4	10	900	360 50
445	4	69	43	30	59½	4	10	1000	389 50
554	3	65¼	50½	36	54¾	5	11	1100	419 00
555	4	73	50½	36	62¼	5	11	1300	477 00
556	5	80¾	50½	36	70	5	11	1450	521 00

Ideal Invincible Water Boilers

No.	Sections	Height (to Top Outlet) Inches	Diameter Inches	Diameter Grate Inches	Two Outlets and Two Inlets Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
120	2	42	29	19	2½	8	375	$105 50
130	3	47¾	29	19	2½	8	425	123 00
230	3	50¼	32½	21	3	8	575	158 50
240	4	56½	32½	21	3	8	650	184 00
330	3	52½	36½	25	3½	9	825	210 50
340	4	59¼	36½	25	3½	9	1000	237 00
430	3	54¼	43	30	4	10	1250	306 50
440	4	61¾	43	30	4	10	1500	350 50
450	5	69	43	30	4	10	1650	380 00
530	3	56½	50½	36	5	11	1825	409 00
540	4	64¾	50½	36	5	11	2150	467 50
550	5	72	50½	36	5	11	2400	511 50

Ideal Junior Steam Boilers

No.	Height (to Top Outlets) Inches	Diameter Inches	Diameter Firepot Inches	Height Water Line Inches	Smoke Pipe Inches	Ratings (Note Page 69)	Price Complete
*201	52	23	15	46	6	175	$105 50
*301	52	27	18	46	7	250	132 00
†302	56	27	18	50	7	300	149 00

*This Boiler has drop tube. †This Boiler has drop tube and extra section.

Ideal Portable Steam Boilers

No.	Sections	Height (to top Outlets) Inches	Diameter Inches	Diameter Firepot Inches	Height of Water Line Inches	One Outlet Inches	Two Inlets Inches	Smoke Pipe Inches	Ratings (Note)	Price Complete
103	2	52½	31½	19	42	2½	2	8	300	$149 50
104	3	58½	31½	19	47½	2½	2	8	350	167 00
203	2	55¼	34	21	43	3	2	9	400	193 00
204	3	61½	34	21	49¼	3	2	9	450	206 50
205	4	67½	34	21	55½	3	2	9	500	219 50
303	2	57	38¾	25	44	3½	2½	10	550	232 50
304	3	64	38¾	25	51	3½	2½	10	600	246 00
305	4	71	38¾	25	58	3½	2½	10	650	287 50
403	2	59	44½	30	45¼	4	3	11	850	346 00
404	3	67	44½	30	52½	4	3	11	1000	389 50
405	4	73½	44½	30	59½	4	3	11	1100	419 00
504	3	65¼	52	36	54¾	5	3½	12	1250	462 50
505	4	73	52	36	62¼	5	3½	12	1450	506 50
506	5	80¾	52	36	70	5	3½	12	1600	565 00

Ideal Portable Water Boilers

No.	Sections	Height (to Top Outlets) Inches	Diameter Inches	Diameter Firepot Inches	Two Outlets and two Inlets Inches	Smoke Pipe Inches	Ratings (Note)	Price Complete
13	3	44	28¾	19	2½	8	350	$101 00
14	4	48	28¾	19	2½	8	400	114 00
15	5	52¼	28¾	19	2½	8	450	131 50
24	4	50	32½	21	3	8	550	153 50
25	5	54¾	32½	21	3	8	625	171 00
26	6	59	32½	21	3	8	675	187 50
34	4	51¾	36½	25	3½	9	775	204 00
35	5	56½	36½	25	3½	9	875	217 50
36	6	61¼	36½	25	3½	9	975	233 50
37	7	66	36½	25	3½	9	1050	274 00
44	4	54¾	43	30	4	10	1200	299 50
45	5	60	43	30	4	10	1400	336 00
46	6	65¼	43	30	4	10	1600	372 50
47	7	70½	43	30	4	10	1700	389 50
55	5	62¾	50½	36	5	11	1775	402 00
56	6	68½	50½	36	5	11	2000	438 50
57	7	74¼	50½	36	5	11	2250	486 00
58	8	80	50½	36	5	11	2400	511 50

NOTE—RATINGS. The ratings given provide that all piping in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of boiler required.

The ratings and list prices herein given were adopted March 1, 1903, and supersede those published in all previous catalogues.

When a pipe coil or cast iron section is introduced into the fire pot for the purpose of heating water for domestic use, additional capacity should be figured in determining size of boiler, viz., one and one-quarter square feet of direct steam radiation, or two square feet of direct water radiation, for each gallon of water to be thus heated, according to the capacity of the tank to which coil or section is connected.

When indirect radiation is to be used, not less than seventy-five per cent increase over direct radiation should be figured in determining the size of boiler required.

In rating boilers as above, it is understood that an average pressure of two pounds will be maintained at the steam boiler, or a temperature of 180 degrees Fahr. in a water boiler.

GUARANTEE—These boilers are guaranteed only to the extent of furnishing new castings for any found defective in manufacture. They are conservatively rated according to accepted standards, but on account of the varying conditions surrounding their installation, we do not guarantee our boilers except as above.

RECOMMENDATION—Both on account of increased efficiency and in the interest of greater economy, we strongly recommend that all boilers be thoroughly protected by a substantial covering of asbestos.

Ideal Sectional Tank Heaters

No.	Sections	Length with Smoke-Hood	Total H'g't, In.	Total W'th, In.	Foundation, Inches	Size of Grate	Inside of Firepot	Sm'ke Pipe, In.	Tank Cap'city Gallons	Price Complete
1–4	4	24	40	17	16 x 16	8 x 12	12x12x20	5	300	$ 65 00
1–5	5	28	40	17	20 x 16	8 x 16	12x16x20	5	375	79 00
1–6	6	32	40	17	24 x 16	8 x 20	12x20x20	5	450	92 50
1–7	7	36	40	17	28 x 16	8 x 24	12x24x20	5	525	105 50

Ideal Premier Junior Tank Heaters

No.	Height, Inches	Diameter* Inches	Diameter Grate, Inches	Outlets, Inches	Smoke Pipe, Inches	Ratings (See Note Page 69)	Capacity, Gallons	Price Complete
0	31	18	10	1–1½	5	60	80	$ 32 50
101	33⅛	14¾	10¼	1–1½	5	75	100	35 50
121	41½	18½	12	1–2	6	130	175	46 00
122	46¾	18⅝	12	1–2	6	165	225	53 00
151	47½	20¾	15	2–2	6	275	375	79 00
152	55¼	22	15	2–2	7	350	450	92 50
181	50⅛	24¼	18	2–2	7	425	550	109 50

* Diameter of base at floor line. None of the Ideal Premier Tank Heaters has intermediate section.

Ideal Junior Tank Heaters

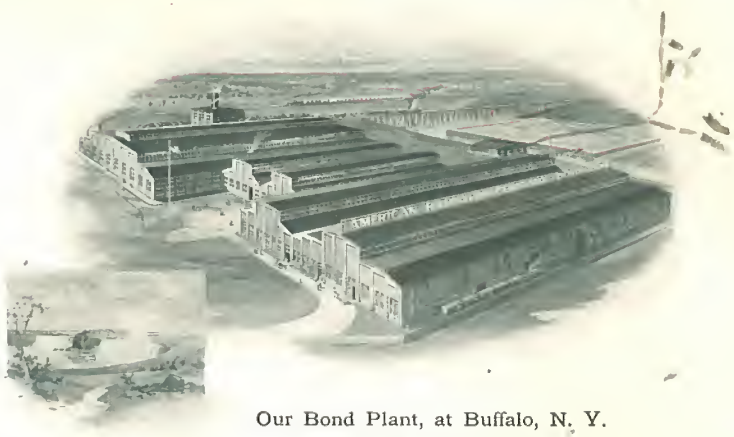
No.	Height (to Top Outlets) Inches	Diameter, Inches	Diameter Firepot, Inches	Outlets, Inches	Smoke Pipe, Inches	Ratings (See Note Page 69)	Tank Capacity, Gallons	Price Complete
0	31	18	10	1–1½	5	60	80	$ 32 50
10	35	21	12	1–2	5	125	165	44 50
*11	35	21	12	1–2	5	155	200	49 00
†12	40	21	12	1–2	5	175	225	53 00
20	43	23	15	2–2	6	210	275	60 00
*21	43	23	15	2–2	6	255	325	70 50
†22	47	23	15	2–2	6	275	350	74 50
30	43	27	18	2–2	7	285	370	78 00
*31	43	27	18	2–2	7	375	485	98 50
†32	47	27	18	2–2	7	425	550	109 50

* This Heater has drop tube. † This Heater has drop tube and dome.

Ideal Laundry and Tank Heaters

No.	Height, Inches	Diameter of Grate, Inches	Number and Size Outlets, Inches	Number and Size Inlets, Inches	Smoke Pipe, Inches	Number of Sad-Irons	Tank Cap'y Gallons	List Price Complete
1	33¼	10	1–1	1–1	5	15	100	$ 35 50
2	33¾	12	1–1¼	1–1¼	6	20	175	46 00
3	34½	15	1–1½	1–1½	6	20	275	60 00

Where Ideal Boilers are made



Our Bond Plant, at Buffalo, N. Y.
(Run by Niagara Falls power.)

Our Michigan Plant, at Detroit, Mich.

These Plants are devoted exclusively to the manufacture of IDEAL Boilers

Ideal heating